WHAT IS CLAIMED IS:

1. A spindle motor for a disk drive, comprising:

a spindle motor base;

a shaft coupled to the spindle motor base, the shaft defining a longitudinal axis;

a first bearing, the first bearing including:

a first inner race attached to the shaft;

a first outer race;

a first ball set between the first inner race and the first outer race;

a second bearing spaced-apart from the first bearing along the longitudinal axis, the second bearing including:

a second inner race attached to the shaft;

a second outer race;

a second ball set between the second inner race and the second outer race; and

a rotary hub surrounding the shaft, and

a hub extension between the first and second bearings that extends from the rotary hub toward the longitudinal axis beyond the first and second outer races and between the first and second inner races.

2. The spindle motor of Claim 1, wherein the hub extension is unitary and integral with the rotary hub.

3. The spindle motor of Claim 1, wherein the hub extension is distinct from the rotary hub.

4. The spindle motor of Claim 1, wherein the first and second inner races are attached to the shaft and wherein the spindle motor further comprises a first compliant member between the first outer race and the rotary hub and a second compliant member between the second outer race and the rotary hub.

5. The spindle motor of Claim 1, wherein the first and second outer races are attached to the rotary hub and wherein the spindle motor further comprises a third compliant member between the first inner race and the shaft and a fourth compliant member between the second inner race and the shaft.

6. The spindle motor of Claim 1, wherein the first and second outer races are attached to the

rotary hub and wherein the hub extension extends between the first and second bearings so as to form a first gap between the hub extension and at least a portion of the first inner race and a second gap between the hub extension and at least a portion of the second inner race.

7. The spindle motor of Claim 6, wherein the hub extension is dimensioned such that the first gap spans a first distance that is less than a non-operational deflection and greater than an operational deflection, the non-operational deflection and the operational deflection being defined as a deflection of the first inner race relative to the first outer race that would cause permanent deformation of the first bearing should the spindle motor be subjected to a shock event when the spindle motor is not in operation and is in operation, respectively.

8. The spindle motor of Claim 6, wherein the hub extension is dimensioned such that the second gap spans a second distance that is less than a non-operational deflection and greater than an operational deflection, the non-operational deflection and the operational deflection being defined as a deflection of the second inner race relative to the second outer race that would cause permanent deformation of the second bearing should the spindle motor be subjected to a shock event when the spindle motor is not in operation and is in operation, respectively.

9. The spindle motor of Claim 6, wherein the hub extension is configured such that at least one of the first and second gaps is selected to be between about 0.0001 and about 0.0012 inches in width.

10. The spindle motor of Claim 1, wherein the shaft defines a recessed portion between the first and second inner races, the recessed portion defining a first facing surface and a second facing surface, each of the first and second facing surfaces being perpendicular to the longitudinal axis and wherein the hub extension extends partially into the recessed portion to define a third gap with the first facing surface and a fourth gap with the second facing surface.

11. The spindle motor of Claim 10, wherein the hub extension is dimensioned such that the third and fourth gaps each span a third distance that is less than a non-operational deflection and greater than an operational deflection, the non-operational deflection and the operational deflection being defined as a deflection of the first inner race relative to the first outer race that would cause permanent deformation of the first bearing should the spindle motor be subjected to a shock event when the spindle motor is not in operation and is in operation, respectively.

12. The spindle motor of Claim 10, wherein the hub extension is configured such that the

third and fourth gaps are each selected to be between about 0.0001 and about 0.0012 inches in width.

13. The spindle motor of Claim 10, further including a fifth compliant member between the first outer race and the rotary hub and a sixth compliant member between the second outer race and the rotary hub.

14. The spindle motor of Claim 13, further including a seventh compliant member disposed between the hub extension and the first outer race and an eighth compliant member disposed between the hub extension and the second outer race.

15. The spindle motor of Claim 10, further including a ninth compliant member between the first inner race and the shaft and a tenth compliant member between the second inner race and the shaft.

16. The spindle motor of Claim 10, further including an eleventh compliant member disposed on a first portion of the hub extension that faces the first facing surface and a twelfth compliant member disposed on a second portion of the hub extension that faces the second facing surface.

17. The spindle motor of Claim 10, further including a twenty-first compliant member disposed on a first portion of the hub extension that faces the first inner race and a twenty-second compliant member disposed on a second portion of the hub extension that faces the second inner ring.

18. The spindle motor of Claim 1, wherein the first outer race defines a first hub extension contact surface and the second outer race defines a second hub extension contact surface that faces the first hub extension contact surface and wherein the hub extension contacts the first and second hub extension contact surfaces and wherein the spindle motor further comprises a first preload keeper attached to the shaft, the first preload keeper loading at least the first bearing by exerting a force on the first inner race, the exerted force being directed toward the second bearing.

19. The spindle motor of Claim 18, further comprising:

a thirteenth compliant member disposed between the preload keeper and the first inner race and between the first inner race and the shaft, and

a fourteenth compliant member disposed between the second inner race and the shaft and between the second inner race and the base.

20. The spindle motor of Claim 18, further wherein the spindle motor is configured so as to define an axial travel limit gap, the axial travel limit gap enabling the spindle motor to displace and at least partially close the axial travel limit gap without undergoing permanent deformation of the first and second bearings under the influence of a shock event in an axial direction.

21. The spindle motor of Claim 20, wherein the axial travel limit gap is selected to be between about 0.0001 and 0.0012 inches in width.

22. The spindle motor of Claim 20, wherein the second outer race and the spindle motor base are mutually spaced apart so as to define the axial travel limit gap.

23. The spindle motor of Claim 20, wherein the preload keeper and the first outer race are mutually space apart so as to define the axial travel limit gap.

24. The spindle motor of Claim 20, wherein the spindle motor further includes a stator support configured to support a stator within the spindle motor, and wherein the hub includes a lower bearing ring portion and wherein the stator support and the lower bearing ring portion are mutually spaced apart so as to define the axial travel limit gap.

25. The spindle motor of Claim 18, further wherein the spindle motor is configured so as to define a radial travel limit gap, the radial travel limit gap enabling the spindle motor to displace and at least partially close the radial travel limit gap without undergoing permanent deformation of the first and second bearings under the influence of a shock event in a radial direction.

26. The spindle motor of Claim 25, wherein the radial travel limit gap is selected to be between about 0.0001 and 0.0012 inches in width.

27. The spindle motor of Claim 25, further comprising a stator support for supporting a stator, the stator support being integral with the spindle motor base and wherein the rotary hub further includes a second bearing support portion for supporting the second bearing and wherein the stator support and the second bearing support portion are mutually spaced apart so as to define the radial travel limit gap .

28. The spindle motor of Claim 25, wherein the rotary hub further includes a second bearing support portion for supporting the second bearing and wherein the second bearing support portion and the second outer race are mutually spaced apart so as to define the radial travel limit gap.

29. The spindle motor of Claim 25, wherein the hub extension defines a third facing surface

that is parallel to the longitudinal axis and wherein the third facing surface is spaced apart from the shaft so as to define the radial travel limit gap.

30. The spindle motor of Claim 25, wherein the rotary hub defines a fourth facing surface that is parallel to the longitudinal axis and wherein the preload keeper defines a first preload keeper surface that is parallel to and faces the fourth facing surface, the fourth facing surface and the first preload keeper surface being spaced apart so as to define the radial travel limit gap.

31. A disk drive comprising:

a disk drive base;

a spindle motor attached to the disk drive base, the spindle motor comprising:

a spindle motor base;

a shaft coupled to the spindle motor base, the shaft defining a longitudinal axis;

a first bearing, the first bearing including:

a first inner race attached to the shaft;

a first outer race;

a first ball set between the first inner race and the first outer race;

a second bearing spaced-apart from the first bearing along the longitudinal axis, the second bearing including:

a second inner race attached to the shaft;

a second outer race;

a second ball set between the second inner race and the second outer race; and

a rotary hub surrounding the shaft, and

a hub extension between the first and second bearings that extends from the rotary hub toward the longitudinal axis beyond the first and second outer races and between the first and second inner races.

32. The disk drive of Claim 31, wherein the hub extension is unitary and integral with the rotary hub.

33. The disk drive of Claim 31, wherein the hub extension is distinct from the rotary hub.

34. The disk drive of Claim 31, wherein the first and second inner races are attached to the shaft and wherein the spindle motor further comprises a first compliant member between the first outer race and the rotary hub and a second compliant member between the second outer race and

the rotary hub.

35. The disk drive of Claim 31, wherein the first and second outer races are attached to the rotary hub and wherein the spindle motor further comprises a third compliant member between the first inner race and the shaft and a fourth compliant member between the second inner race and the shaft.

36. The disk drive of Claim 31, wherein the first and second outer races are attached to the rotary hub and wherein the hub extension extends between the first and second bearings so as to form a first gap between the hub extension and at least a portion of the first inner race and a second gap between the hub extension and at least a portion of the second inner race.

37. The disk drive of Claim 36, wherein the hub extension is dimensioned such that the first gap spans a first distance that is less than a non-operational deflection and greater than an operational deflection, the non-operational deflection and the operational deflection being defined as a deflection of the first inner race relative to the first outer race that would cause permanent deformation of the first bearing should the spindle motor be subjected to a shock event when the spindle motor is not in operation and is in operation, respectively.

38. The disk drive of Claim 36, wherein the hub extension is dimensioned such that the second gap spans a second distance that is less than a non-operational deflection and greater than an operational deflection, the non-operational deflection and the operational deflection being defined as a deflection of the second inner race relative to the second outer race that would cause permanent deformation of the second bearing should the spindle motor be subjected to a shock event when the spindle motor is not in operation and is in operation, respectively.

39. The disk drive of Claim 36, wherein the hub extension is configured such that at least one of the first and second gaps is selected to be between about 0.0001 and about 0.0012 inches in width.

40. The disk drive of Claim 31, wherein the shaft defines a recessed portion between the first and second inner races, the recessed portion defining a first facing surface and a second facing surface, each of the first and second facing surfaces being perpendicular to the longitudinal axis and wherein the hub extension extends partially into the recessed portion to define a third gap with the first facing surface and a fourth gap with the second facing surface.

41. The disk drive of Claim 40, wherein the hub extension is dimensioned such that the third

and fourth gaps each span a third distance that is less than a non-operational deflection and greater than an operational deflection, the non-operational deflection and the operational deflection being defined as a deflection of the first inner race relative to the first outer race that would cause permanent deformation of the first bearing should the spindle motor be subjected to a shock event when the spindle motor is not in operation and is in operation, respectively.

42. The disk drive of Claim 40, wherein the hub extension is configured such that the third and fourth gaps are each selected to be between about 0.0001 and about 0.0012 inches in width.

43. The disk drive of Claim 40, further including a fifth compliant member between the first outer race and the rotary hub and a sixth compliant member between the second outer race and the rotary hub.

44. The disk drive of Claim 43, further including a seventh compliant member disposed between the hub extension and the first outer race and an eighth compliant member disposed between the hub extension and the second outer race.

45. The disk drive of Claim 44, wherein the fifth and seventh compliant members are unitary and integral with one another and wherein the seventh and eighth compliant members are unitary and integral with one another.

46. The disk drive of Claim 40, further including a ninth compliant member between the first inner race and the shaft and a tenth compliant member between the second inner race and the shaft.

47. The disk drive of Claim 40, further including an eleventh compliant member disposed on a first portion of the hub extension that faces the first facing surface and a twelfth compliant member disposed on a second portion of the hub extension that faces the second facing surface.

48. The disk drive of Claim 31, wherein the first outer race defines a first hub extension contact surface and the second outer race defines a second hub extension contact surface that faces the first hub extension contact surface and wherein the hub extension contacts the first and second hub extension contact surfaces and wherein the spindle motor further comprises a first preload keeper attached to the shaft, the first preload keeper loading at least the first bearing by exerting a force on the first inner race, the exerted force being directed toward the second bearing.

49. The disk drive of Claim 48, further comprising:

a thirteenth compliant member disposed between the preload keeper and the first inner race and between the first inner race and the shaft, and

a fourteenth compliant member disposed between the second inner race and the shaft and between the second inner race and the base.

50. The disk drive of Claim 48, further wherein the spindle motor is configured so as to define an axial travel limit gap, the axial travel limit gap enabling a portion of the spindle motor to displace and at least partially close the axial travel limit gap without undergoing permanent deformation under the influence of a shock event in an axial direction.

51. The disk drive of Claim 50, wherein the axial travel limit gap is selected to be between about 0.0001 and 0.0012 inches in width.

52. The disk drive of Claim 50, wherein the second outer race and the spindle motor base are mutually spaced apart so as to define the axial travel limit gap.

53. The disk drive of Claim 50, wherein the preload keeper and the first outer race are mutually space apart so as to define the axial travel limit gap.

54. The disk drive of Claim 50, further comprising a stator support configured to support the stator within the spindle motor and wherein the stator support and the spindle motor base are mutually spaced apart so as to define the axial travel limit gap.

55. The disk drive of Claim 50, wherein the spindle motor further includes a stator support configured to support the stator within the spindle motor, and wherein the hub includes a lower bearing ring portion and wherein the stator support and the lower bearing ring portion are mutually spaced apart so as to define the axial travel limit gap.

56. The disk drive of Claim 48, further wherein the spindle motor is configured so as to define a radial travel limit gap, the radial travel limit gap enabling a portion of the spindle motor to displace and at least partially close the radial travel limit gap without undergoing permanent deformation under the influence of a shock event in a radial direction.

57. The disk drive of Claim 56, wherein the radial travel limit gap is selected to be between about 0.0001 and 0.0012 inches in width.

58. The disk drive of Claim 56, further comprising a stator support for supporting a stator, the stator support being integral with the spindle motor base and wherein the rotary hub further includes a second bearing support portion for supporting the second bearing and wherein the

stator support and the second bearing support portion are mutually spaced apart so as to define the radial travel limit gap .

59. The disk drive of Claim 56, further comprising a spindle disk mounting flange and wherein the spindle disk mounting flange and the spindle motor base are mutually spaced apart so as to define the radial travel limit gap.

60. The disk drive of Claim 56, wherein the rotary hub further includes a second bearing support portion for supporting the second bearing and wherein the second bearing support portion and the second outer race are mutually spaced apart so as to define the radial travel limit gap.

61. The disk drive of Claim 56, wherein the hub extension defines a third facing surface that is parallel to the longitudinal axis and wherein the third facing surface is spaced apart from the shaft so as to define the radial travel limit gap.

62. The disk drive of Claim 56, wherein the rotary hub defines a fourth facing surface that is parallel to the longitudinal axis and wherein the preload keeper defines a first preload keeper surface that is parallel to and faces the fourth facing surface, the fourth facing surface and the first preload keeper surface being spaced apart so as to define the radial travel limit gap.

63. A spindle motor for a disk drive, comprising:

a rotating shaft, the rotating shaft defining a longitudinal axis;

a first bearing, the first bearing including:

a first inner race attached to the rotating shaft;

a first outer race;

a first ball set between the first inner race and the first outer race;

a second bearing spaced-apart from the first bearing along the longitudinal axis, the second bearing including:

a second inner race attached to the rotating shaft;

a second outer race;

a second ball set between the second inner race and the second outer race;

a hub surrounding the shaft, the hub defining a hub extension configured to exert a pre-loading force on the first inner race, the pre-loading force being directed toward the second inner race;

a spindle motor base, the spindle motor base including a base extension between the first and

second bearings that extends toward the longitudinal axis beyond the first and second outer races.

64. The spindle motor of Claim 63, further comprising:

a seventeenth compliant member disposed between the first outer race and the spindle motor base, and

an eighteenth compliant member disposed between the second outer race and the spindle motor base.

65. The spindle motor of Claim 64, wherein the seventeenth and eighteenth compliant members are non-conductive.

66. The spindle motor of Claim 64, wherein the seventeenth and eighteenth compliant members are conductive.

67. The spindle motor of Claim 63, further comprising:

a nineteenth compliant member disposed between the first inner race and the rotating shaft, and

a twentieth compliant member disposed between the second inner race and the rotating shaft.